

## The Rearing of the Army Ant Male, *Neivamyrmex harrisi* (Haldeman) from Larvae Collected from a Nest of *N. wheeleri* (Emery)<sup>1</sup>

**ABSTRACT:** *Neivamyrmex wheeleri* (Emery), 1901 formerly known only from the worker and queen, is synonymized with *N. harrisi* (Haldeman), 1852, previously known only from the male. Sexual larvae which were spinning cocoons were collected with workers; they developed to adults in 36 days in the laboratory at an average temperature of 22.2 C and humidity of 61.9%. The emergence date of the males reared in the laboratory coincides with previously reported maximum collection dates, and the workers and males reared in the laboratory generally agree with descriptions in the literature. Original descriptions of the sexual larvae and cocoons are given.

### INTRODUCTION

Seven of the 17 species of *Neivamyrmex* Borgmeier found in the United States were previously known only from males, and six species were known only from workers, or workers and queens. Smith (1942) predicted that some of these names would probably become synonyms and would need to be suppressed when the males are associated with the other castes.

Wheeler (1908:413) suggested that *N. harrisi* may be the male of *N. pilosus* (F. Smith); however, M. R. Smith (1942) listed *N. mexicanum* (F. Smith) as the male of *N. pilosus*. Also M. R. Smith (1942) in discussing *N. harrisi* stated, "The color of the body of the male, the nature of the sculpturing and pilosity, and the distribution of the ant in Texas strongly suggest that this may be the male of *wheeleri*."

The synonymy of *N. wheeleri* (Emery), 1901, with *N. harrisi* (Haldeman), 1852, is proposed in this paper and is based on the rearing of males from larvae collected with workers. Also original descriptions of the male larva and cocoon are given.

### COLLECTION AND REARING OF MALES

Smith (1942), Borgmeier (1955) and my own records (unpublished) list 56 collection dates for males of *N. harrisi* in Texas, distributed as follows: June (12), July (15), August (18), September (7), October (4).

On 3 July 1967 I collected over 2,000 sexual larvae and prepupae from a subterranean nest of "*N. wheeleri*" near Waco, Texas. These larvae, all of which were spinning or already enclosed in cocoons, were in a cavity about 15 x 20 x 18 cm high formed by rocks and cedar roots covered by soil. Most of the cocoons were held by masses of workers distributed along cedar rootlets hanging from the roof of the cavity. All of the sexual brood was in or near this one cavity, although numerous tunnels and smaller cavities in the soil contained hundreds of thousands of workers. Foraging workers were found under scattered rocks in the general area within a 25 m radius from the nest.

The sexual brood, along with thousands of workers, was transported to the laboratory and placed in laboratory nests. The laboratory temperature was maintained at an average of 22.2 C with a variation of less than 2 C, and humidity averaged 61.9% with a maximum variation of 5%. Within 10 days fungi destroyed all brood in nests with soil or to which moisture was added. Thirty-eight larvae that were placed on a dry paper towel in a plastic container and to which no moisture was added survived. Eight of these were removed from their cocoons and preserved at three to five day intervals to check on their progress. On the 36th day in the laboratory, several sclerotized

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males could be seen moving inside the cocoons. The cocoons were cut open and 23 fully formed males and seven partially formed dead males of *N. harrisi* were removed. Since the laboratory temperature was at least 6 C cooler than the average outside temperature, the brood probably developed much more slowly than is normal under field conditions.

*Neivamyrmex harrisi* (Haldeman)

*Labidus harrisi* Haldeman, 1852, p. 367, pl. 9, fig. 4-6 (♂; Fort Gates, Coryell Co., Texas; *nec* Utah, *teste* M. R. Smith, 1942).—Cresson, 1872, p. 194.

*Eciton (Labidus) harrisi*, Mayr, 1887, p. 441 (Utah; Texas).—Emery, 1895, p. 261.—Wheeler & Long, 1901, p. 165, fig. 2a (Austin, Tex.).

*Eciton harrisi*, Forel, 1899, p. 28 (Utah; Mexico: Sonora, Mazatlan, Ventanas).

*Eciton (Acamatus) harrisi*, Emery, 1900, p. 515, fig. 18 (Utah; Texas); 1910, p. 26.—Wheeler, 1908, p. 413, pl. 26, fig. 10 (Texas, N. Mex., Arizona; Mexico: Sinaloa).

*Eciton wheeleri* Emery, 1901, p. 55, fig. 8 (♂; Itays [lapsus for Hays] Co., Texas).

*Eciton (Acamatus) wheeleri*, Wheeler, 1908, p. 412 (♀; Texas: Hays Co.; Travis Co., Austin; Mexico: Guadalajara).—Emery, 1910, p. 25.

*Eciton (Acamatus) wheeleri* subsp. *dubia* Creighton, 1932, p. 73, pl. 3, fig. 1-3 (♂, ♀; Fort Worth, Texas).

*Eciton (Neivamyrmex) wheeleri*, M. R. Smith, 1942, p. 561, fig. 5, 12 (♂, ♀; Texas, Mexico); 1951 (in Muesebeck), p. 781.—Creighton, 1950, p. 76.

*Eciton (Neivamyrmex) harrisi*, M. R. Smith, 1942, p. 572, fig. 21 (Arizona, New Mexico, Oklahoma, Texas; Mexico: Durango, Coahuila, Colima); 1951 (in Muesebeck), p. 780.—Creighton 1950, p. 72.

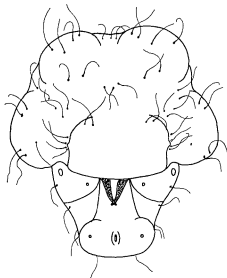


Fig. 1.—Anterior view of head of larva of *N. harrisi* male.

*Neivamyrmex wheeleri*, Borgmeier, 1953, p. 6.

The following descriptions are based on specimens from the same nest collected near Waco, Texas.

*Worker*.—Agrees with the description of *N. wheeleri* (Emery) by M. R. Smith (1942).

*Male, adult reared from larva*.—10.5 to 13.0 mm. Generally agrees with the descriptions of *N. harrisi* (Haldeman) by M. R. Smith (1942) and Borgmeier (1955). The stipes vary from the angular, medially constricted structure illustrated by Borgmeier (1955; Taf. 50, Fig. 12) to almost evenly rounded and not constricted in the middle. (Ten specimens examined in detail.)

*Male larva*.—Length 12.5 mm. Body cylindrical, tapering toward the anterior end; evenly curved ventrally, posterior end bluntly rounded; 13 distinct postcephalic segments with a moderately dense covering of short (0.225 to 0.275 mm) simple hairs. Greatest diameter of body 2.5 mm at the sixth abdominal segment; median diameter of the first thoracic segment 1.1 mm. Head (Fig. 1) small, not sclerotized; length 0.75 mm, width 0.575 mm. Large hemispherical elevation on each side of cranium, and a slightly smaller elevation on each side of the vertex when viewed from the front. Mandibles moderately sclerotized, slender, nearly straight, except for a slight inward curve near the tip, with sharp pointed apex; visible length extending from beneath lower border of labrum 0.075 mm. Maxilla large, palp noticeable at base. Labium (prementum) very prominent, cylindrical, with blunt tip. Color creamy-white, shiny. (Material studied: two specimens just before spinning cocoons.)

*Cocoon, sexual form*.—Length 12.25 to 13.6 mm; width 3.2 to 3.8 mm; slightly constricted in the middle; bluntly rounded at each end. Color rust-brown. (Description based on ten specimens)

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